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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,396	04/12/2001	Kui Ming Chui	COLGRAP26AUS	9212

7590 02/03/2004
Davis & Bujold
Fourth Floor
500 North Commercial Street
Manchester, NH 03101-1151

EXAMINER

CHOOBIN, BARRY

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 02/03/2004

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/807,396

Applicant(s)

CHUI, KUI MING

Examiner

Barry Choobin

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 17-33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on April 12, 2001 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 17-31 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the point or line spread function of an imaging system is determined prior to the actual object scans of interest. The point or line spread function is then used, in a de-convolution step, to correct the object scan.

It is not clear what exactly is meant with the last feature "sub-pixel sampling". The feature is therefore interpreted to merely mean that the deconvolution process is carried out at sub-sample accuracy.

4. Claims 19 and 31 recite the limitation "the transfer " in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 17-19, 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman et al (US 5,150,292) in view of Alperin, K. R. Hoffman (XP 000147033, IEEE, 1990).

As to claims 17 and 29, Hoffman et al disclose a method of imaging in which a de-convolution process is applied to the image domain results of the object scan to derive therefrom the respective point or line spread function of at least one object discontinuity, and to derive from said function the location in the image domain of the respective discontinuity (column 11, line 21-52). However, Hoffamn et al is silent about the deconvolution process us carried out using sun-pixel sampling. But on the other hand, Alperin, K. R. Hoffman disclose an automated analysis of coronary lesions from cineangiograms using vessel tracking and iterative deconvolution techniques comprising: the deconvolution process using carried out using sun-pixel sampling (page 154, right hand column, lines 1-10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the deconvolution process using carried out using sun-pixel sampling as thought by Alperin, K. R. Hoffman with the method of Hoffman et al in order to improve the enhancement and accuracy if the image.

As to claims 18 and 30, Alperin, K. R. Hoffman disclose the location of the respective discontinuity is derived from the mid-point of the full width half maximum of the function (see page 155, column 2).

As to claims 21 and 33, least square filters are conventional in deconvolution process (Official Notice).

As to claims 22-24 (see Alperin, K. R. Hoffman, fig.3).

As to claims 25, 27 and 28, Hoffman et al disclose a magnetic resonance imaging system (column 2, line 32-41).

Claims 19, 26, 31 are similarly analyzed and rejected.

Allowable Subject Matter

7. Claims 20 and 32 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 2002/0186874 to Price et al.

US 5790692 to Price et al.

US 5576548 to Clarke et al.

US 6603529 to Finarov.

US 6166801 to Dishon et al.

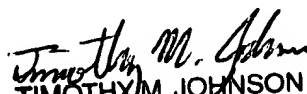
CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry Choobin whose telephone number is 703-306-5787. The examiner can normally be reached on M-F 7:30 AM to 18:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 703-308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Barry choobin
January 30, 2004


TIMOTHY M. JOHNSON
PRIMARY EXAMINER